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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,282	03/24/2000	Selda Günsel	42053.6USPT	2884

24238 7590 02/07/2002

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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 02/07/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

AS-62

# Office Action Summary

Application No.

09/534,282

Applicant(s)

GUNSEL ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,11-14 and 23-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,11-14 and 23-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
/ 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Preliminary amendments to claims 1 – 12, 14 – 26, 29 and 30, filed on November 13, 2001, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Request for Continued Examination***

3. The Request for Continued Examination (RCE) under 37 CFR 1.53(d) filed on November 13, 2001 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Claim Rejections - 35 USC § 103***

4. Claims 1, 2, 11 – 14 and 23 – 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stirniman et al. (U.S. Patent No. 6,319,600 B1) in view of Venier et al. ('023), Babb et al. (U.S. Patent No. 5,364,547) and Venier, Casserly and Gunsel (IDS reference titled "Tris(2-Octyldodecyl)Cyclopentane, a Low Volatility, Wide Liquid-Range, Hydrocarbon Fluid").

Regarding claims 1, 2, 13, 14, 30 and 31, Stirniman et al. disclose a magnetic recording medium comprising a non-magnetic support, a magnetic layer formed on the support, a protective layer formed on the magnetic layer and a lubricant layer over the

protective layer (col. 1, lines 15 – 20 and col. 1, line 63 bridging col. 2, line 25). The examiner notes that claims 30 and 31 contain nominal method limitations and no restriction has been made between the product and method. Amendment to introduce significant method limitations may result in restriction due to original presentation.

While Stirniman et al. disclose a perfluoropolyether F25 lubricant layer, Stirniman et al. fail to disclose a lubricant layer meeting applicants' claimed limitations (col. 5, lines 18 – 36).

However, Venier et al. ('023) and Venier et al. (IDS paper) teach lubricant compositions meeting applicants' claimed limitations which provide superior physical, optical and wear properties compared to perfluoropolyether Z25 lubricants (Venier et al (IDS paper), sections 1, 6, 6.3.3 and 7; and Venier et al. ('023), col. 1, lines 15 – 26 and col. 4, line 43 bridging col. 5, line 47). The examiner acknowledges the lack of a date on the IDS paper to Venier et al., yet deems that the paper is clearly available as prior art since, based on the other provided Venier et al. references and Venier et al. ('023), it is clear that the research conducted by Venier and Casserly on the multiply-alkylated cyclopentanes was done around 1988 – 1992. Applicants' are requested to provide a date for the Venier et al. (IDS paper) if they feel that it is not applicable under 35 U.S.C. 103(a).

Furthermore, Babb et al. teach that it is known in the art that lubricating oils for use as engine lubricants, as the Venier et al. ('023) lubricant compositions are disclosed as being suitable for (col. 7, lines 1 – 5), are also known to be useful for magnetic recording media (abstract and col. 1, line 17 bridging col. 2, line 18).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Stirniman et al. to include a lubricant layer meeting applicants' claimed limitations as taught by Venier et al. ('023) in view of the general teachings of Venier et al. (IDS paper) and Babb et al. in order to provide a lubricant possessing superior physical, optical and wear properties compared to the perfluoropolyether lubricant used by the Stirniman et al. invention.

Regarding claims 11, 12, 23 and 24, while neither Venier et al. reference explicitly disclose the lubricant structure claimed by applicants', one of ordinary skill in the art would be motivated to make and use the claimed hydrocarbyl substituted lubricant in searching for a hydrocarbyl substituted cyclopentane, cyclopentene or cyclopentadiene. The necessary motivation rises from ***the expectation that similar compounds will have similar properties***. *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). The only difference between the disclosed lubricants and the lubricants claimed in the preceding claims is in the choice of the ***non-functionalized*** hydrocarbyl group that is substituted on the identical base compound.

Regarding claims 25 - 29, the added limitations are obvious to one of ordinary skill in the art since they are nominal magnetic head, data apparatus and computer limitations. It is old in the art to use lubricants on both the magnetic head portion, as well as the magnetic recording medium, as well as having the necessary power supply, magnetic head and computer components in order for the magnetic recording medium to be adequately used for its designed purpose. Amendment to include significant head or apparatus elements may result in restriction due to original presentation.

Regarding claims 32 - 35, Venier et al. ('023) disclose adding one or more additives to the lubricant layer meeting applicants' claimed limitations (col. 5, lines 48 – 63; col. 7, line 62 bridging col. 8, line 25; and col. 24, lines 27 – 53).

5. Claims 11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stirniman et al., Venier et al. ('023), Venier et al. (IDS paper) and Babb et al. as applied above (hereafter referred to as SVVB), and further in view of Patsidis et al. ('351).

SVVB disclose the claimed invention as described above.

SVVB fail to explicitly disclose a hydrocarbyl substitution meeting applicants' claimed limitations (i.e. a dicyclic pentane, pentene or pentadiene).

However, Patsidis et al. teach that bridged cyclopentadiene compounds are known in the art, wherein the bridge can be just a hydrocarbyl CH<sub>2</sub> group (col. 1, lines 28 – 38 and col. 2, lines 19 – 49).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of SVVB to use hydrocarbyl substitutions meeting applicants' claimed limitations as taught by Patsidis et al. since one of ordinary skill in the art would be motivated to make and use the claimed hydrocarbyl substituted lubricant in searching for a hydrocarbyl substituted cyclopentane, cyclopentene or cyclopentadiene. The necessary motivation rises from ***the expectation that similar compounds will have similar properties. In re Payne***, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). The only difference between the disclosed

lubricants and the lubricants claimed in the preceding claims is in the choice of the **non-functionalized** hydrocarbyl group that is substituted on the identical base compound.

6. Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over SVVB as applied above, and further in view of Venier and Casserly (IDS reference from Symposium on the Chem. of Lubricants, Boston Meeting, pre-print, 35(2), 1990).

SVVB disclose the claimed invention as described above.

SVVB fail to explicitly disclose a hydrocarbyl substitution meeting applicants' claimed limitations.

However, Venier and Casserly teach that Diels-Alder functionalized cyclopentane based materials are known in the lubricating art as equivalents to cyclopentane, cyclopentene and cyclopentadiene based lubricants (Background section).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of SVVB to use hydrocarbyl substitutions meeting applicants' claimed limitations as taught by Venier and Casserly since one of ordinary skill in the art would be motivated to make and use the claimed hydrocarbyl substituted lubricant in searching for a hydrocarbyl substituted cyclopentane, cyclopentene or cyclopentadiene. The necessary motivation rises from **the expectation that similar compounds will have similar properties**. *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). The only difference between the disclosed

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lubricants and the lubricants claimed in the preceding claims is in the choice of the **non-functionalized** hydrocarbyl group that is substituted on the identical base compound.

7. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over SVVB as applied above, and further in view of Sanechika et al. (U.S. Patent No. 5,547,593) and Ng ('216).

SVVB disclose the claimed invention as described above. For purposes of evaluating the prior art, the examiner has taken "functionalized" to mean "an organic group that includes carbon, hydrogen, and a functional group (e.g. a polar group)", as defined by the applicants (page 7, lines 2 – 7).

While SVVB disclose using mixtures of hydrocarbyl substituted lubricants (Venier et al. ('023), col. 5, lines 48 – 63 and col. 7, line 63 bridging col. 8, line 25), SVVB fail to explicitly disclose using a mixture of one non-functionalized cyclic lubricant and one functionalized cyclic lubricant.

However, Sanechika et al. teach using a mixture of lubricants comprising a fluorinated lubricant and a branched alkyl aromatic non-functionalized lubricant in order to regulate the viscosity and lubricating properties of the overall lubricant, as well as to provide improved low temperature performance (col. 4, line 65 bridging col. 5, line 7 and col. 6, lines 28 – 46). The examiner acknowledges that Sanechika et al. is not directed to a combination of a non-functionalized cyclopentane, pentene or pentadiene with a functionalized cyclopentane, pentene or pentadiene, but is instead directed to a functionalized aromatic material combined with a non-functionalized aromatic material,



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though Sanechika et al. does disclose that various types of group exhibiting aromaticity can be used (col. 9, lines 20 – 29).

However, Ng teaches that for magnetic recording media, the aromatic functional groups are equivalent to cyclopentane, cyclopentene and cyclopentadiene groups for purposes of having free electrons available to bond the lubricant to the surface to be lubricated. As such, the aromatic groups used by Sanechika et al. are deemed to be equivalent to the claimed cyclopentane, pentene and pentadienes.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of SVVB to use a mixture of functionalized cyclopentane, pentene and pentadienes and non-functionalized cyclopentane, pentene and pentadienes as taught by Sanechika et al. and Ng since a mixture of functionalized and non-functionalized cyclopentane, pentene and pentadienes would provide improved low temperature performance, as well as allow accurate control of the viscosity and lubricating properties of the mixture.

8. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over SVVB as applied above, and further in view of Tsuchiya et al. ('516) and Hayashi ('983).

SVVB disclose the claimed invention as described above. For purposes of evaluating the prior art, the examiner has taken "functionalized" to mean "an organic group that includes carbon, hydrogen, and a functional group (e.g. a polar group)", as defined by the applicants (page 7, lines 2 – 7).

While SVVB disclose using mixtures of hydrocarbyl substituted lubricants (Venier et al. ('023), col. 5, lines 48 – 63 and col. 7, line 63 bridging col. 8, line 25), SVVB fail to explicitly disclose using a mixture of one non-functionalized cyclic lubricant and one functionalized cyclic lubricant.

However, Tsuchiya et al. teach that the addition of polar groups to cyclopentane, pentene and pentadiene results in improved flowability, heat resistance and electrical characteristics (col. 1, lines 10 – 20 and col. 1, line 61 bridging col. 2, line 51).

Furthermore, Hayashi teaches that one of ordinary skill in the art would know that “hydrocarbyl substituted” as disclosed by Venier et al. ('023) would cover functionalized substituents (col. 2, line 40 bridging col. 3, line 30).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of SVVB to include a mixture of lubricants meeting applicants' claimed limitations as taught by Tsuchiya et al. and Hayashi since a mixture of functionalized and non-functionalized lubricants would allow tailoring of not only the viscosity and lubricating properties, but also the flowability, heat resistance and electrical characteristics.

### ***Response to Arguments***

#### **9. The rejection of claims 1 - 37 under 35 U.S.C § 103(a) – Ng and others**

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

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**Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Green et al. (U.S. Patent No. 3,925,217) teach hydrocarbyl substituted cyclohexyl ring compounds as known lubricants (col. 2, line 67 bridging col. 4, line 9). The examiner reminds applicants that similar compounds will have similar properties. *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). There is no evidence of record that cyclopentyl compounds would perform differently than cyclohexyl compounds in terms of lubrication. Fusco (U.S. Patent No. 4,077,992) teaches cyclic lubricants wherein they disclose the equivalents of 5 – 7 carbon atom rings (col. 1, lines 5 – 9; col. 1, line 34 bridging col. 2, line 9; and col. 2, lines 24 – 44).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



KMB  
February 5, 2002



STEVAN A. RESAN  
PRIMARY EXAMINER